

DIY Mass Media

Tired of selective and biased coverage of the news in your area? Bored with the same old top-40 radio stations? Tired of tuning up and down the FM band to find something worthwhile? Ready to take matters into your own hands, but don't have an extra \$100,000 to finance your own radio station? Have no fear, the micro-power radio movement is here, and it's time for you to get involved!



Micro-power radio has been called "freecasting," "pirate radio," and more recently, "sandbox radio." Throughout Europe and Africa, it has played an important part in informing and entertaining the public with alternatives not available from government-controlled media sources. Now in the United States, micro radio is becoming increasingly important. Large corporations are buying up every last independent broadcast media outlets and pressuring the government to increase regulations to keep new players out of the game. This has stifled alternative thought on the airwaves.

Micro-power radio is true community radio because its signal only reaches a small geographic area. Depending on the power output, a micro-power station can reach from 1/4 of a mile to 10 miles or more. Coverage could be an apartment complex, a college campus, or a small town. And because of the capture effect of FM and the low power of micro-power broadcasts, another micro-power station in a neighboring community broadcasting on the same frequency would cause little interference. Micro radio is to commercial radio as newsletters are to slick magazines.

Is It Legal?

Well...no, if you want to be technical about it. The FCC tightened up its licensing requirements in 1980 because of the lobbying efforts of commercial broadcasters and The Corporation for Public Broadcasting (your 'public radio' friends at NPR). Since then, the minimum price to get on the air has risen to \$50,000--not counting operating expenses. These costs make broadcasting too expensive for individuals. Micro-power has changed all that: a complete station can be assembled for a few hundred dollars, or a bare-bones station for less than a hundred.

One goal of the micro-power movement is to force the FCC to reinstate low-power radio licenses. Similar actions in Europe and Canada have been successful: Canada now issues micro-power licenses; Italy has totally deregulated radio, permitting anyone with a transmitter to broadcast; and England now allows non-government stations. All these gains were made by micro-power stations and their ever-increasing listenership.

Groups like San Francisco Liberation Radio and Free Radio Berkeley have been running high-profile stations, openly challenging the FCC to take them to court. So far the FCC has done little but file notices of apparent violations. In Springfield, Illinois, Black Liberation Radio has been broadcasting for five years, 3 of them after the FCC fined the station \$750 (which has not been paid).

Many other micro-power stations have been running for years with little interference from the FCC. Not to say that the FCC doesn't frown on these broadcasts; but in most cases, they won't go after a micro-power broadcaster unless there has been a complaint, usually about interference with commercial stations. The micro-power movement stresses careful consideration when selecting a broadcast frequency, along with care to use only equipment producing "clean" signals.

Roll Your Own Radio

Radio can be better with micro-power radio stations that serve a community, not a 200-mile region. Get involved! Here's a brief explanation of what you'll need to start your own micro-power radio station:

- A group of committed people who get along well and have plenty of time and energy.
- A format (presuming you have something worth saying.)
- A site to transmit from.
- A Frequency that is on an open FM channel.
- A transmitter built from kits, homebrew, or aquired on the surplus market.
- An antenna built or modified to work on the FM Broadcast band.
- Misc odds and ends to tie things together.

One person could operate a micro-power station alone--but the time and effort to produce a show, setup the equipment, and do the actual broadcast requires lots of work. Having a small group of like-minded people greatly enhances the operation of the station, offering more ideas for programming and more hands for equipment setup/teardown. Also, the team effort required to put together a radio show is one of the reasons that chaos doesn't break out on the airwaves!

Find a site. If you're broadcasting a powerful signal (or worry the politicians in your area won't appreciate your denouncing them as fascists), you may want to select a place that offers a fast getaway. A dormitory roof or any other high location works great for micro stations, but even antennas mounted to wooden poles jammed outside of a window have been known to work. A broadcast site must offer

convenience, central location to your listenership--and protection from the FCC, if necessary.

Before your first broadcast, find an open space on the airwaves. On the FM band, channels are spaced every 200kHz, from 87.9 MHz to 107.9 MHz. (You'll notice on most digital tuners that the frequency changes by jumps of 200kHz. For example : 87.9 MHz will become 88.1 MHz when the 'up' button is pressed.) Care must be taken not to broadcast above 108MHz; this space is used by aircraft, and you could cause a safety risk if you interfere with aircraft communication. In the best of worlds, you would want at least one clear channel between the frequency you choose and the next station. In most urban centers, this is impossible. Best bets are the channels that lie between 87.9 and 92.1 Mhz--but be careful not to broadcast over faint, low power commercial or public stations.

Hardest to find will be the transmitter. Although it's possible to buy an old FM transmitter from the pre-1980 legal micro-power days, you'll probably have to build your own. Don't worry: it's not as hard as it sounds. Several companies produce kits based on the BA1404 monolithic FM stereo transmitter chips. These kits are very simple to assemble and produce high quality stereo signals.

Antennas are one of the easiest pieces to acquire or build, but are also the items most micro-power radio operators skimp on. Big mistake! The antenna is one of the most important parts of the station. With a poor antenna, your range will be limited and you risk interfering with other stations, even if all your other equipment is very high quality. Antennas for FM micro-power radio stations can be made out of a couple pieces of wire, adapted from amateur radio antennas, or purchased outright from your local Radio Shack. Read up: the ARRL Handbook (also known as the amateur radio bible) contains everything you'll want to know about antennas--and just about every thing else technically involved in a micro-power radio station. Highly recommended!

There are a few other things you will probably need for your station: a soldering iron; basic knowledge of electronics to assemble the transmitter; a power source (a car battery or a CB radio power supply works great); an SWR meter to measure how much power your transmitter is producing and reaching your antenna; and a good digital receiver or a frequency counter to ensure your transmitter stays at the right frequency. And of course, audio source (tape deck and/or mixer and microphone), wire, audio patch cords, and coaxial cables to connect everything together.

That is basically all you need to get on the air and take back the airwaves from the giant megacorps. Read up and turn on your own micro-power radio cannon. With micro-power radio, you can score a victory for truth and liberty, without censorship or control. And don't forget the killer music.

[This was written by me to be a very basic introduction to Micro Power Radio for Iron Feather Journal #14.]

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